3
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UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
POLLUTION REPORT

I. HEADINGS

DATE: July 28, 2000

SUBJECT: Hopkins Airport Discharge Site (Cleveland, Cuyahoga County, Ohio)

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POLREP #1 - INITIAL (EMERGENCY RESPONSE)

Start Date: July 14, 2000

II. BACKGROUND

FPN:	
Response Authority	CERCLA
NPL Status:	Non-NPL
State Notification:	Ohio EPA
Completion Date:	TB
Latitude:	41°24'12.6" N
Longitude:	81°52'04" W

III. SITE INFORMATION

A. Incident Category

CERCLA Emergency Response

B. Site Description

1. Site location and background

The Hopkins Airport Discharge Site (Site) is located on the property of the National Aeronautics

and Space Administration (NASA) Glenn Research Center at 21000 Brookpark Road in Cleveland, Cuyahoga County, Ohio. The Site consists of seven storm sewer outfalls from Cleveland Hopkins International Airport (CHIA; located east of the NASA property) which discharge into the Rocky River, Abram Creek, and their tributaries, which run through the NASA property to the south, west, and north. Two of the outfalls (RETF-01 and RETF-02), which discharge to a major and a minor tributary to Abram Creek, respectively, are located south of the Rocket Engine Test Facility (RETF; S-40) at the southern end of the NASA property. The approximate flow velocities of these outfalls are 2.2 feet per second (ft/sec) and 0.24 ft/sec, respectively. Outfall #015, located northwest of the entrance driveway to the NASA property, discharges to the Rocky River over a cliff and has an approximate flow velocity of 2.58 ft/sec. Outfall #017, located northwest of the entrance driveway at a construction site, also discharges to the Rocky River and has an approximate flow velocity of 1.6 ft/sec. Outfall #008, located adjacent to Building 135 (Vertical Lift Facility area), discharges to Abram Creek and has an approximate flow velocity of 0.58 ft/sec. Finally, a double outfall set (CAOF-001E and CAOF-001W), located north of the airport and the NASA property (east of Grayton Road), discharges to a tributary of the Rocky River. Outfall CAOF-001E has an approximate flow velocity of 2.33 ft/sec and Outfall CAOF-001W has an approximate flow velocity of 1.2 ft/sec.

On previous occasions, representatives from the NASA Glenn Research Center have notified the U.S. Environmental Protection Agency (EPA) Region 5 in regards to odors detected by NASA employees who work at the RETF. NASA officials identified the source of the odors to be from a tributary to Abram Creek, which runs through the RETF area and flows north to Abram Creek from a CHIA outfall at its origin (RETF-01). A significant amount of a tan- to pink-colored bacterial growth is visible coating the inside of the 96-inch CHIA outfall (RETF-01) and on most of the rocks which form the bed of the tributary.

2. Description of threats

The CHIA utilizes a solution containing ethylene and/or propylene glycol to deice airplanes during the Winter months. Additionally, in the past the CHIA is suspected to have utilized a solution containing urea to melt ice on the airport runways during the Winter months. Potassium acetate is currently utilized by the airport to "salt" the runways in the Winter. Ethylene glycol is a clear, colorless, odorless, viscous liquid with a sweet taste, that, when ingested, breaks down into metabolites that are highly toxic. Some enteric bacteria are able to break down urea into ammonia and carbon dioxide. In a body of water, nitrogen in the form of ammonia(ium), in high concentrations, is toxic to fish. Ammonia(ium), in low concentrations, and nitrates serve as nutrients for excessive growth of algae and other microorganisms. Also, the conversion of ammonia(ium) to nitrates consumes large quantities of dissolved oxygen in water.

IV. RESPONSE INFORMATION

A. Situation and Actions Taken

On July 14, 2000, at approximately 1345 hours, following notification by a representative from NASA, U.S. EPA Region V, On-Scene Coordinator (OSC) Joe Fredle dispatched the Superfund Technical Assessment and Response Team (START) to provide technical assistance and emergency response support, including stream water monitoring and outfall water sampling. At approximately 1515 hours, START member Drew Pearce arrived on site at the NASA Glenn Research Center and met with OSC Fredle and Dan Papcke, NASA Environmental Engineer. At

approximately 1615 hours, OSC Fredle, START, and the NASA representative began walking along the tributary to Abram Creek starting at the parking area of the RETF (S-40) and ending at the 96-inch CHIA outfall (RETF-01) which forms the origin of the tributary at the southern end of the NASA property. From this outfall, the tributary was observed to flow north to Abram Creek. An excessive amount of a tan- to pink-colored bacterial growth was observed coating the inside of the CHIA outfall and on most of the rocks which form the bed of the tributary. A musty odor, similar to that of decaying organic matter, was apparent along the entire length of the tributary and around the parking area of the RETF. Heavy rainfall occurred during 1200 to 1300 hours, and the levels of moisture in the air were still elevated during the initial emergency response.

OSC Fredle and START conducted air monitoring along the tributary and around the RETF parking area. Colorimetric indicator tubes, specific to ethylene glycol and ammonia, indicated the presence of ammonia at a concentration of less than 0.25 ppm. Air monitoring readings with a photo-ionization detector and a combustible gas indicator/oxygen meter were observed to be not above background levels at the NASA property.

At approximately 1630 hours, START collected one grab water sample from the CHIA outfall (RETF-01). The pH of the water coming from the CHIA outfall was observed to be 8.0 s.u. The field screening result for ammonium (NH_4^+) at this sample location was approximately 30 ppm. Additionally, START field screened the tributary to Abram Creek in a pool downstream from the CHIA outfall near the RETF parking area (upstream from the culvert). The field screening results at this location were approximately 30 ppm of ammonium and a pH of 7 s.u. Unvalidated laboratory results for this sample were 16 milligrams per liter (mg/L) of nitrogen (ammonia) and less than 10 mg/L of ethylene and propylene glycol.

On July 25, 2000, OSC Fredle and START Pearce returned to the Site to continue stream water monitoring and outfall water sampling activities. START collected grab water samples from all seven of the CHIA outfalls for the following laboratory analytical parameters: acetic acid, ethylene glycol, propylene glycol, and ammonia. Additionally, START collected a sample of the bacterial growth from the rock bed of the tributary to Abram Creek at outfall location RETF-01. START conducted stream water quality monitoring at the seven CHIA outfalls and at a location downstream from outfalls RETF-01 and -02 in the tributary to Abram Creek. START collected stream water quality data for the following parameters: pH, temperature, dissolved oxygen (DO), and ammonium. Additionally, OSC Fredle and START collected data on outfall dimensions and flow velocities in order to calculate volume discharge rates for each of the seven CHIA outfalls.

Outfall #017 had the following water quality field results: pH of 6.0 s.u., temperature of 20°C, 6.0 mg/L of DO, and 10 ppm of ammonium. Outfall RETF-01 had the following water quality field results: pH of 7.5 s.u., temperature of 20°C, 2.2 mg/L of DO, and 20-30 ppm of ammonium. Outfall CAOF-001W had the following water quality field results: pH of 7.5 s.u., temperature of 20°C, 6.0 mg/L of DO, and 30 ppm of ammonium. Musty odors were detected and significant bacterial growth was visible at all three of the aforementioned outfall locations, especially at outfalls RETF-01 and CAOF-001W. Outfalls RETF-01 and CAOF-001W had the highest levels of ammonium, lowest levels of DO, and the most extensive amount of bacterial growth and odors in and around the outfalls.

Stream water monitoring and outfall water sampling activities were conducted by START from 1000 to 1730 hours. At 1800 hours, START demobilized from the Site.

B. **Future Actions**

- Await laboratory analytical results and calculate volume discharge rates (gallons per minute) for each of the seven CHIA outfalls.

- OSC Fredle to meet with representatives from CHIA and NASA on Monday, August 21, 2000.

C. **Key Issues**

- Determination of daily outfall discharge rates on a pounds per 24-hour basis as it relates to laboratory analytical parameters and subsequent results.

V. COST INFORMATION

Estimated costs as of 7/28/00:

START	$2,644